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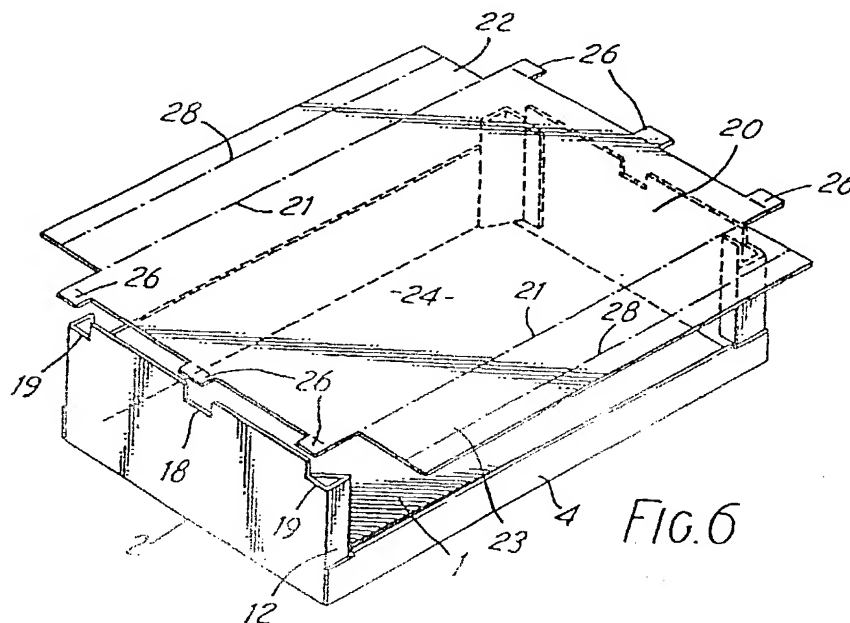
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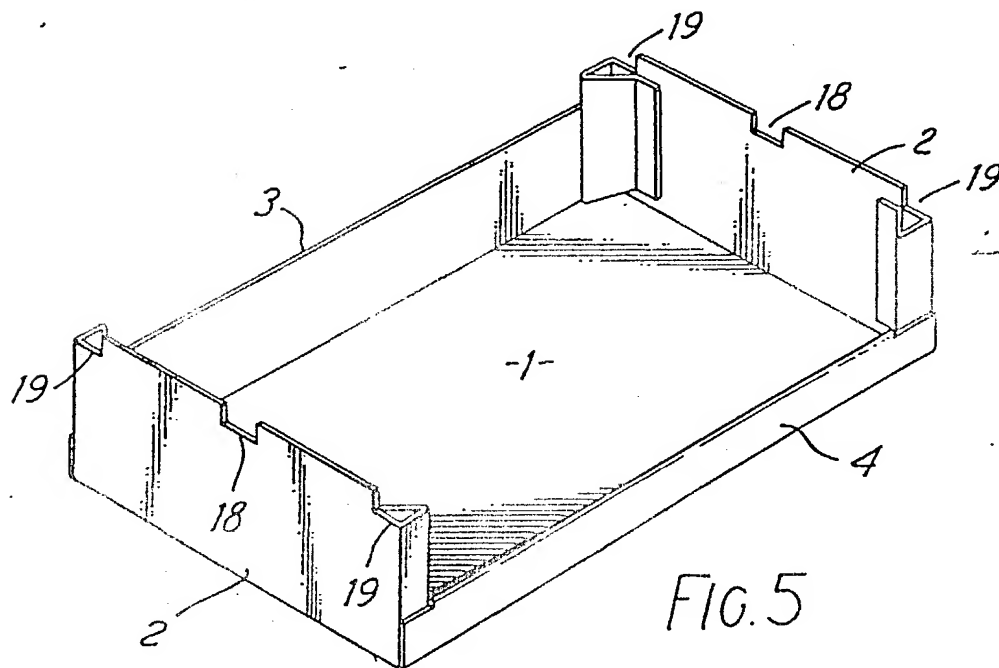
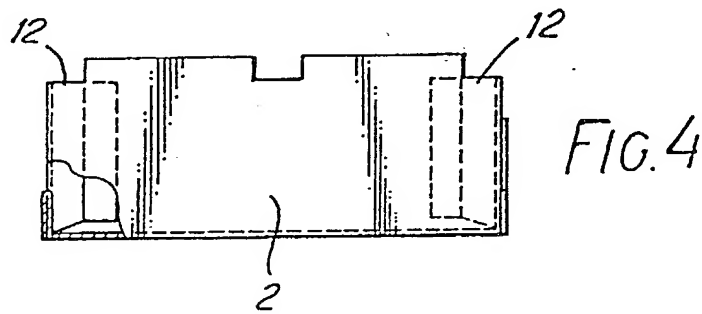
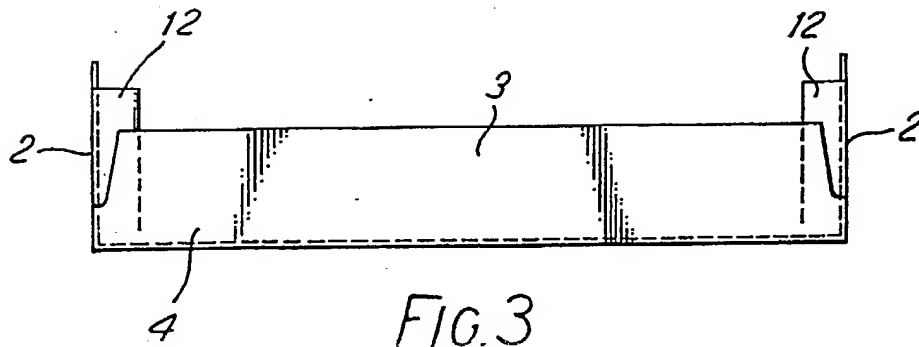
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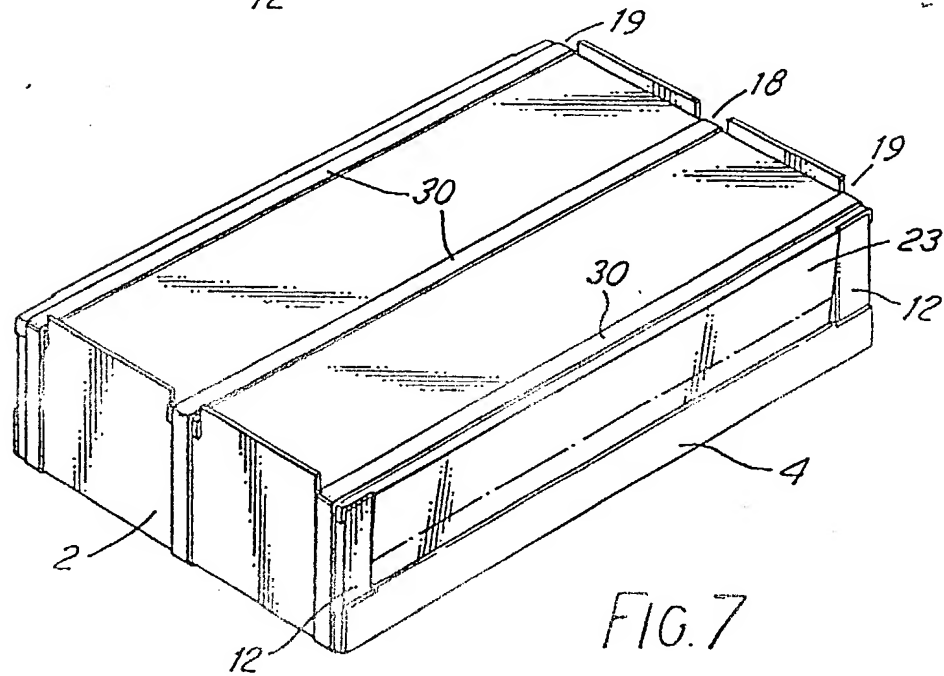
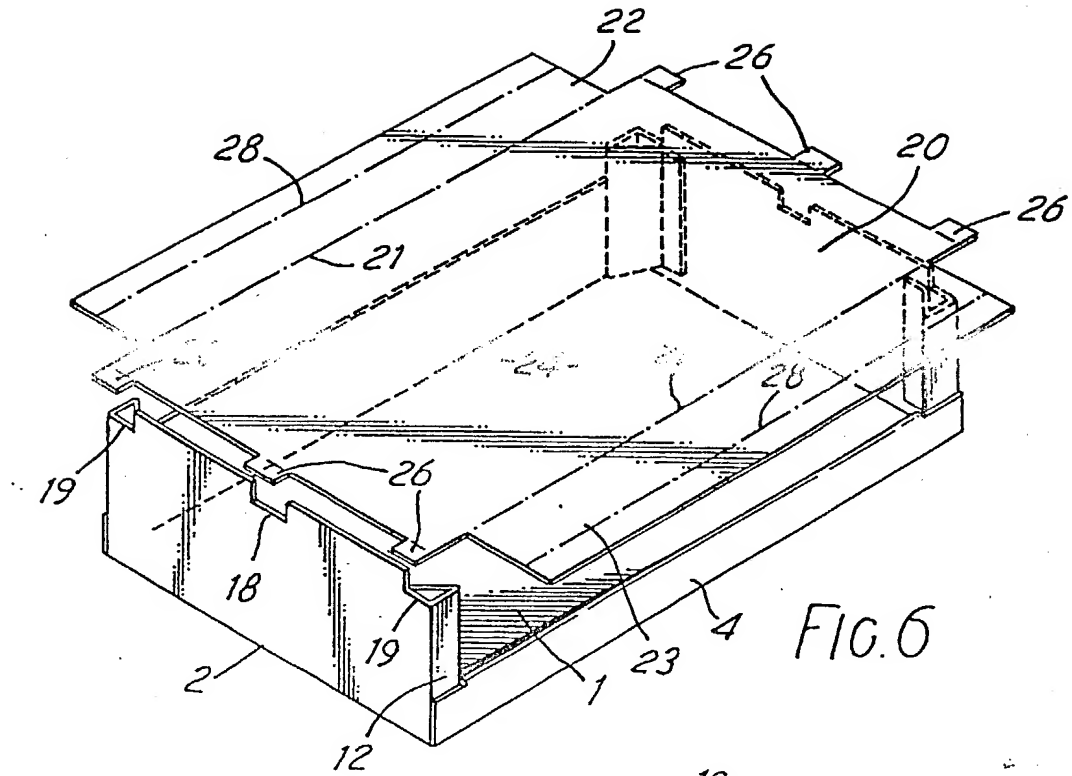
(54) Tray

(57) A covered display tray erected from at least one blank has internal corner reinforcements 12 at least at the front, a tray cover 20 being secured over the tray in such a way that it is carried by the corner reinforcements 12 and having a depending front flap 23, a portion of which is tucked in behind a front part 4 of the tray.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.
This print incorporates corrections made under Section 117(1) of the Patents Act 1977.





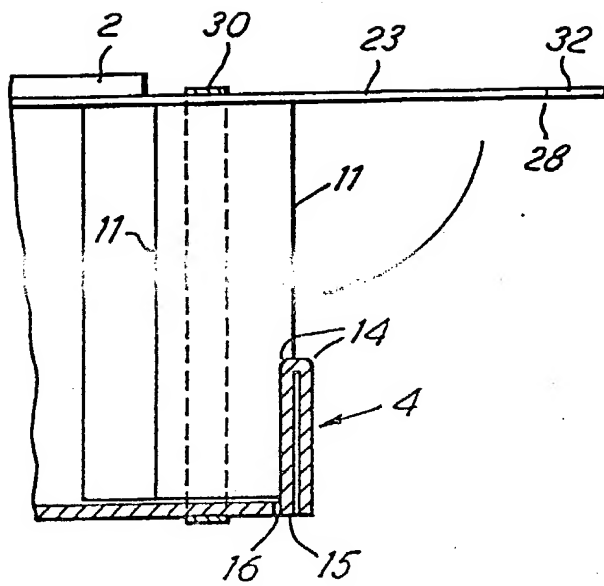


FIG. 8A

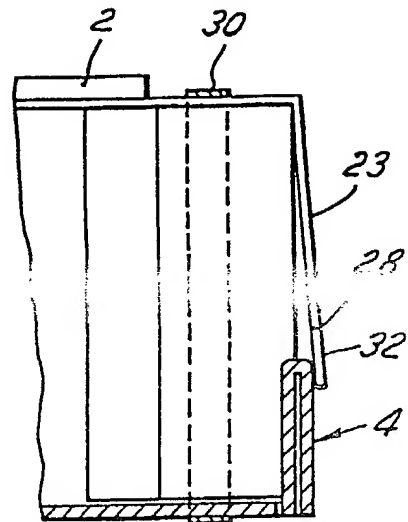


FIG. 8B

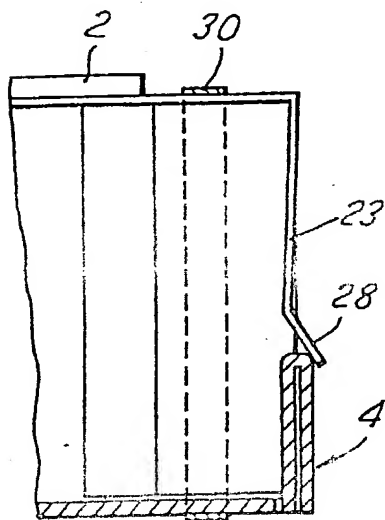


FIG. 8C

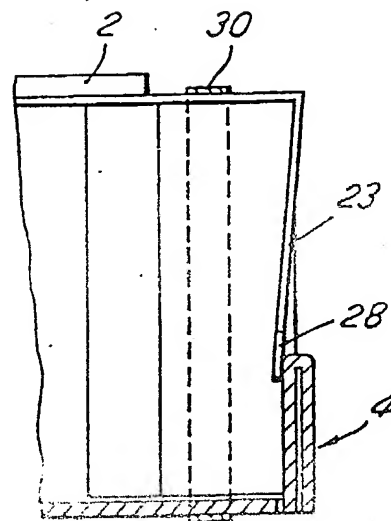


FIG. 8D

TRAY

This invention relates to trays, particularly trays which are erected from a blank. Such trays are commonly made from corrugated paper having an internal corrugated paper layer bonded to flat paper facing sheets, but cardboard, plastics sheeting, etc. may also be used.

The trays with which the invention is especially concerned are used for displaying goods for sale at retail outlets such as supermarkets and also for packaging the goods during transit to the retail outlets. The size and shape of the tray will depend on a number of factors including the nature, number and size of the individual items it is to hold. The invention has been developed particularly for packages such as plastics bags containing potato crisps but it is applicable to a wide variety of goods. It is desirable that the tray has a temporary cover during transit and that this cover is readily removable at the retail outlet without substantial damage to the tray and particularly without damage to any writing along the front wall. It is also desirable that the trays are formed so that they can be readily stacked one upon the other for transit with some method of interlocking which prevents them shifting horizontally with respect to each other at least in a sideways direction.

Generally stated, the invention provides a display tray erected from at least one blank and having internal corner reinforcements at least at the front, a tray cover being provided which is carried by the corner reinforcements and which has a depending front flap, a portion of which is tucked in behind a front part of the tray. Normally a lower portion of the flap is tucked in behind a front wall of the tray but side portions of the flap could be tucked in behind the sides of the front opening of the tray, these sides normally being provided by the reinforcements. Preferably the flap is pre-creased on the outside to define the lower portion to facilitate tucking-in but to make subsequent upward pivoting of the whole flap to regain access difficult. If the main part of the cover is firmly secured in position this makes the covered tray more secure against tampering. At the retail outlet the main part of the cover is released from the tray and removed to expose the goods. In the preferred arrangement the cover can be placed and secured in position and the flap

pivoted down to the tucked-in position using relatively simple machinery. The invention thus extends to a process for covering a tray of the type just described.

A preferred embodiment of the invention is shown by way of example in the accompanying drawings:-

Figure 1 shows a plan view of a tray blank;

Figure 2 shows a plan view of the erected tray;

Figures 3 and 4 respectively show front and end elevations of the erected tray;

Figure 5 is a third angle projection of the erected tray;

Figure 6 is a view similar to Figure 5 with the cover blank superimposed and about to be lowered onto the tray;

Figure 7 is a view similar to figures 5 and 6 with the cover secured in place and the front and back flaps tucked in; and

Figures 8A, 8B, 8C and 8D are vertical sections through the front of the tray illustrating successive states in the tucking-in operation.

The blank shown in Figure 1 is made from corrugated paper and has fold lines indicated by chain-dot lines in the drawing. These fold lines are made by pressing a blunt knife into the top surface of the corrugated paper in a conventional manner. The blank comprises a base panel 1, a pair of end panels 2, a back panel 3 and a front panel 4. The end panels 2 are divided from the base panel 1 by a fold line 6 and slits 7 and the back and front panels 3, 4 by fold lines 5. The panels 2 are extended by panels 8 divided from the panels 2 by fold line 9. Each panel 8 has two further fold lines 11 to permit the panel 8 to be erected into a triangular corner reinforcement 12 as shown for example in Figure 2. To form this reinforcement the outer part of panel 8 is folded back and adhered to panel 2 inwardly of fold line 9 as will be apparent from Figure 2. End panels 2 are then folded upwardly substantially at right angles taking the corner reinforcements 12 with them. Back panel 3 is then folded upwardly at right angles and adhered to the two adjacent corner reinforcements 12. Front panel 4 differs from back panel 3 in being narrower and in having a pair of closely spaced fold lines 14 as well as

tabs 15 which are aligned with holes 16 inwardly of fold line 13 which divides it from panel 1. As shown clearly in Figure 8 front panel 4 is folded back on itself about the two fold lines 14 and the tabs 15 are pushed through the holes 16. The folded front panel 4 is then adhered to the adjacent corner reinforcements 12 and it will be seen from Figure 8 that the arrangement described avoids a raw edge at the top of the front panel 4. The end panels 2 have central notches 18 and end recesses 19 for a purpose to be described later.

Although the parts of the blank are normally secured in the erected condition using an adhesive, other methods of fastening such as stapling can of course be used.

Figure 6 shows a cover blank 20 superimposed on the erected tray but spaced upwardly therefrom. The cover blank 20 is again of corrugated paper and the underside has a pair of fold lines 21 which divide a back flap panel 22 and a front flap panel 23 from a central panel 24. Each end of the blank 20 has three equally spaced tabs 26 which are designed to interlock with the top of the end panels 2 as will be apparent from Figure 6. Further fold lines 28 are provided in the panels 22 and 23 but these fold lines are on the top of the blank.

Figure 7 shows the cover and the tray fully assembled with straps 30 extending around the assembly at the location of the three pairs of tabs 26. When the cover blank 20 has been lowered into position, the tabs 26, which are separated from the main part of the blank by fold lines, are automatically turned downwardly by suitable machinery before the straps are put in position. The next stage of assembly is illustrated in Figures 8A, 8B, 8C and 8D. These figures show the method of closing the front of the tray, the method of closing the back of the tray being analagous. The front flap panel 23 is swung downwardly about fold line 21 as shown by the arrow in Figure 8A until it reaches the position shown in Figure 8B. It is then pushed inwardly as shown in Figure 8C so that its lower end portion 32 snaps in behind the front panel 4 of the tray. Because of the nature of the corrugated paper, it is only readily bendable in one direction about a fold line and this means that the final

arrangement as shown in Figure 7 and Figure 8D is relatively tamperproof.

The shape of the blank is so arranged that, when erected, the end panels 2 slightly diverge outwardly from the vertical (perhaps 3-40). This means that the tops of the end panels 2 which extend above the cover as shown in Figure 7 can be used to locate the base of a similar tray stacked on top.

When the covered tray reaches the retail outlet, the straps can be cut and the cover lifted off without damage to the tray.

It will be seen that the tray can be erected with conventional machinery and that the cover can be secured in position on the filled tray by a simple chimney device which folds down the tabs 26 and the panels 22, 23, the straps 30 being applied between the two steps. Tucking-in of the lower portions of the panels 22, 23 can be achieved by conventional pusher members. Thus the whole operation can be readily automated. The straps 30 may, for example, be of heat sealed polypropylene. As an alternative it is possible to simply adhere the folded down tabs 26 to the end panels 2 but this makes removal of the cover more difficult at the retail outlet and also leaves unsightly traces after the cover has been removed. A further alternative is adhesive tape but again this leaves unsightly traces.

In an alternative embodiment (not shown), the cover blank 20 is integral with the tray blank and is connected to it via panel 3. In this case, the two rear corner reinforcements 12 are unnecessary. It is also possible for example to provide panels 2 on the longer sides of the tray and panels 3, 4 on the shorter sides of the tray, and to provide openings in panels 2 which serve as carrying handles.

It will be seen that the central tabs 26 support the central area of the cover and it may therefore not be necessary to provide internal pillar supports for the cover of the type conventionally used (these supports being lifted out after the cover is removed).

In a further alternative embodiment (not shown), the tabs 26 at each end of the cover are joined to form a continuous flap, the fold line

of the flap (which corresponds to the sides of the cover in the drawings) having two aligned slots to receive the upstanding parts of panel 2 between the notch 18 and the respective end recesses 19. In this case, it is convenient to glue the flaps in position to secure the cover.

CLAIMS

1. A covered display tray erected from at least one blank and having internal corner reinforcements at least at the front, a tray cover being secured over the tray in such a way that it is carried by the corner reinforcements and having a depending front flap, a portion of which is tucked in behind a front part of the tray.
2. A tray according to claim 1, wherein said portion of the flap is a lower portion which is tucked in behind a front wall of the tray.
3. A tray according to claim 1 or 2, wherein the cover is of corrugated paper which is pre-creased on the outside to define said portion in such a way that said portion can be snapped in behind the front of the tray.
4. A tray according to any preceding claim, wherein the cover rests directly on the corner reinforcements.
5. A tray according to any preceding claim, wherein at least a central portion of each side of the cover rests on a side panel of the tray.
6. A tray according to any preceding claim, which has a front wall defining the lower side of a front opening of the tray, the blank being folded over to avoid a raw edge at the top of the front wall.
7. A tray according to any preceding claim, wherein the cover is provided by a separate blank and corner reinforcements are provided at all four corners.
8. A tray according to any preceding claim, wherein the corner reinforcements are formed from flaps on the tray blank folded and secured to form vertical tubes.

9. A tray according to any preceding claim, wherein the cover is secured on the tray by tabs or flaps thereon which are folded down to face the outside of tray side panels.

10. A tray according to any preceding claim, wherein the cover is secured to the tray by straps or tapes.

11. A tray according to any preceding claim, wherein the panels of the tray are inclined outwardly, at least a portion thereof extending above the cover to laterally locate the base of any similar tray which may be stacked thereon.

12. A covered display tray, substantially as hereinbefore described with reference to the drawings.

13. A method of making a covered display tray according to any preceding claim, which comprises erecting the tray from at least one blank, placing goods therein, placing a cover blank over the goods so that it is carried by the corner reinforcements, securing the cover blank to the tray, folding the cover blank to form the cover, and tucking in the said portion of the flap.